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ARMY ELECTRONICS RESEARCH AND DEVELOPMENT COMMAND WS—ETC F/6 4/2  
19702A GSRS, MISSILE NUMBER BR-9, ROUND NUMBER B-53. 25 OCTOBER—ETC(U)

OCT 79

UNCLASSIFIED ERADCOM/ASL-DR-1085

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20. ABSTRACT (Continue on reverse side if necessary and identify by block number) Metereological data gathered for the launching of 19702A GSRS, Missile Number BR-9, Round Number B-53 are presented in tabular form.		

410663 LM

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## INTRODUCTION

19702A GSRS, Missile Number BR-9, Round Number B-53, was launched from LC-33, White Sands Missile Range (WSMR), New Mexico, at 1423:01 MDT 25 October 1979. The scheduled launch time was 1410 MDT.

## DISCUSSION

Meteorological data were recorded and reduced by the White Sands Meteorological Team, Atmospheric Sciences Laboratory (ASL), White Sands Missile Range, New Mexico. The data were obtained by the following methods:

### 1. Observations

#### a. Surface

(1) Standard surface observations to include pressure, temperature ( $^{\circ}\text{C}$ ), relative humidity, dew point ( $^{\circ}\text{C}$ ), density ( $\text{gm/m}^3$ ), wind direction and speed, and cloud cover were made at the LC-33 Met Site at T-0 minutes.

(2) Anemometer data were provided from existing pole-mounted and tower-mounted anemometers at LC-33. Monitor of wind speed and direction from one anemometer was also provided in the launch control room.

#### b. Upper Air

(1) Low level wind data were obtained from RAPTS T-9 pibal observation at:

## SITE AND ALTITUDE

LC-33 2Km  
NICK 2Km

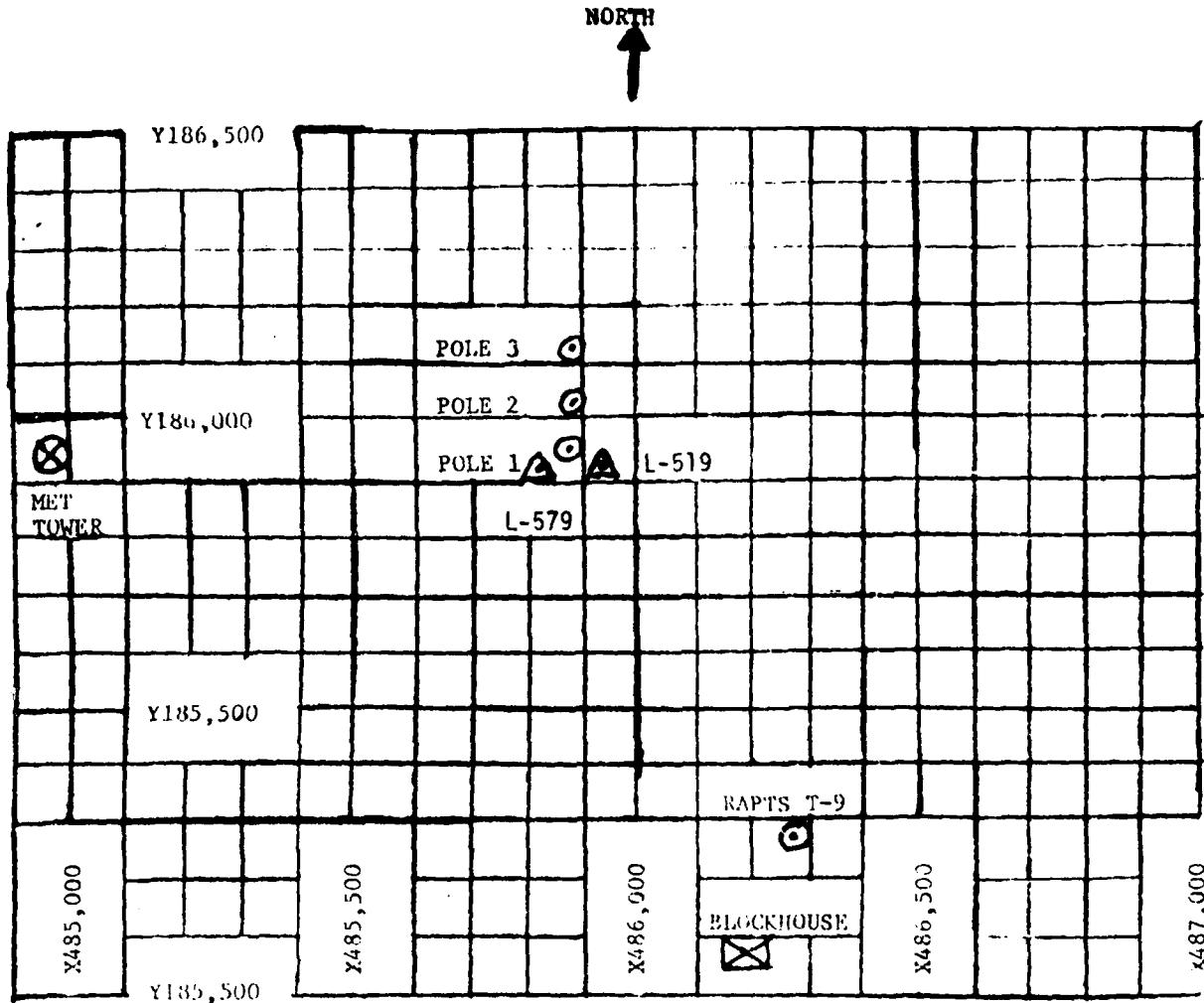
(2) Air structure data (rawinsonde) were collected at the following Met Sites. Data were collected from surface to 35,500 feet in 500-feet increments.

## SITE AND TIME

SMR 1300 MST

1

Accession for	23
RTIG	23
DEC TAB	23
Unannounced	23
Justification	23
By	23
Distribution/	23
Availability	23
and/or	23
Special	23
Dist:	23
23	23
CFF	23



1. MET TOWER - 5 Bendix Model T-20 Anemometers at 11 ft., 31 ft., 102 ft., and 202 ft. with E/A recorders.
2. POLE ANEMOMETER - Bendix Model T-120 with E/A recorders.
  - (a) Pole #1 = 38.7 ft
  - (b) Pole #2 = 53.0 ft
  - (c) Pole #3 = 83.6 ft
3. RAPTS T-9 Radar Automatic Pilot-Balloon Tracking System T-9 Radar.

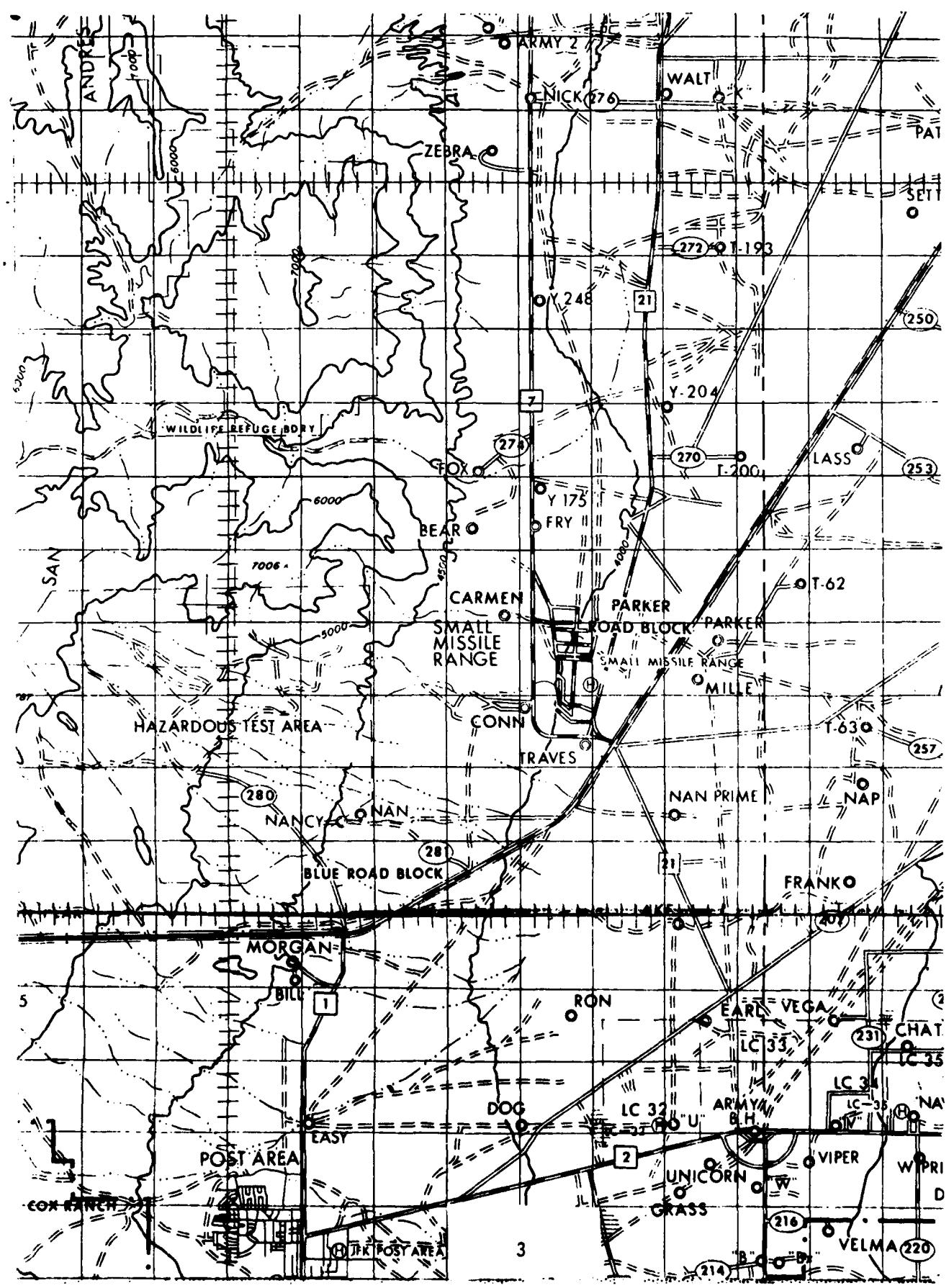


TABLE 1. Surface Observations taken at 1423 MDT,  
25 October 1979, at LC-33, 19702A GSRS,  
Missile Number BR-9, Round Number B-53.

ELEVATION	3977.30	FT/MSL
PRESSURE	879.2	MBS
TEMPERATURE	26.9	°C
RELATIVE HUMIDITY	18	%
DEW POINT	0.5	°C
DENSITY	1016	GM/M <sup>3</sup>
WIND SPEED	03	KTS
WIND DIRECTION	155	DEGREES
CLOUD COVER	CLEAR	

LC-33 FIXED POLE ANEMOMETER MEASURED WINDS

POLE #1			POLE #2			POLE #3		
T-TIME SEC	DIR DEG	SPEED KTS	T-TIME SEC	DIR DEG	SPEED KTS	T-TIME SEC	DIR DEG	SPEED KTS
-30	137	MISG	-30	140	04	-30	131	02
-20	163	MISG	-20	170	05	-20	157	05
-10	153	MISG	-10	150	04	-10	160	06
0.0	164	MISG	0.0	148	07	0.0	145	08
+10	147	MISG	+10	141	06	+10	148	05

POLE #1 = X485,874.29 Y185,958.90 H4018.74 38.7 ft. AGL

POLE #2 = X485,874.93 Y186,012.00 H4033.57 53.0 ft AGL

POLE #3 = X485,877.29 Y186,116.06 H4063.92 83.6 ft AGL

TABLE 2

TYPE 19702A GSRS MISSILE NO. BR-9 ROUND NO. B-53  
 LAUNCHED FROM LC-33 DATE 25 October 1979 TIME 1423 MDT

NOTE: WIND DIRECTIONS ARE REFERENCED TO TRUE NORTH.

LC-33 METEOROLOGICAL TOWER ANEMOMETER MEASURED WINDS (202 FT TOWER)

LEVEL #1 12 Feet			LEVEL #2 62 Feet		
T-TIME SEC	DIR DEG	SPEED KTS	T-TIME SEC	DIR DEG	SPEED KTS
-30	229	03	-30	209	01
-20	230	03	-20	210	01
-10	230	02	-10		CALM
0.0	230	01	0.0	191	01
+10	230	01	+10	187	03
LEVEL #3 102 Feet			LEVEL #4 202 Feet		
T-TIME SEC	DIR DEG	SPEED KTS	T-TIME SEC	DIR DEG	SPEED KTS
-30		CALM	-30	213	03
-20		CALM	-20	212	04
-10	180	01	-10	207	04
0.0	197	04	0.0	210	05
+10	182	03	+10	213	04

WTSM COORDINATES: X484,982.64 Y185,057.73 H3983.00 (base)

TABLE 3

TYPE 19702A GSRS MISSILE NO. BR-9 ROUND NO. B-53

LAUNCHED FROM LC-33 DATE 25 October 1979 TIME 1423 MDT

NOTE: WIND DIRECTIONS ARE REFERENCED TO TRUE NORTH.

GSRS PILOT BALLOON MEASURED WIND DATA

TABLE 4

RELEASED FROM LC-33 DATE 25 October 1979 TIME 1407 MDT

TRACKER COORDINATES (WSTM) X= 486,037.24 Y= 182,350.16 H= 3977.30

MISSILE TYPE 19702A GSRS MISSILE NO. BR-9 ROUND NO. B-53

MISSILE LAUNCHED FROM LC-33 DATE 25 October 1979 TIME 1423 MDT

NOTE: WIND DIRECTIONS ARE REFERENCED TO TRUE NORTH.

GSRS PILOT BALLOON MEASURED WIND DATA

TABLE 5

RELEASED FROM LC-33 DATE 25 October 1979 TIME 1423 MDT

**TRACKER** COORDINATES (WSTM) X= 486,037.24 Y= 182,350.16 H= 3977.30

MISSILE TYPE 19702A GSRS MISSILE NO. BR-9 ROUND NO. B-53

MISSILE LAUNCHED FROM LC-33 DATE 25 October 1979 TIME 1423 MDT

NOTE: WIND DIRECTIONS ARE REFERENCED TO TRUE NORTH.

**HEIGHT - METERS AGL**

HEIGHT AGL	DIRECTION DEGREES	SPEED KTS
SFC	150	02
90	131	03
150	162	02
210	174	04
270	197	04
330	180	03
390	146	03
500	213	02
650	243	02
800	243	07
950	252	09
1150	256	11
1350	288	10
1550	231	07
1750	208	09
2000	232	11

## GSRS PILOT BALLOON MEASURED WIND DATA

TABLE 6

RELEASED FROM NICK DATE 25 October 1979 TIME 1423 MDT  
TRACKER COORDINATES (WSTM) X= 470.734.56 Y= 255,775.64 H= 4126.57  
MISSILE TYPE 19702A GSRS MISSILE NO. BR-9 ROUND NO. B-53  
MISSILE LAUNCHED FROM LC-33 DATE 25 October 1979 TIME 1423 MDT

NOTE: WIND DIRECTIONS ARE REFERENCED TO TRUE NORTH.

**HEIGHT - METERS AGL**

HEIGHT AGL	DIRECTION DEGREES	SPEED KTS
SFC		CALM
90	MISG	MISG
150	190	04
210	140	03
270	130	06
330	135	06
390	145	07
500	165	04
650	185	03
800	225	03
950	261	07
1150	259	08
1350	257	08
1550	235	08
1750	247	07
2000	233	05

STATION ALTITUDE 3997.30 FEET MSL  
25 OLT. 79 1300 HRS MST  
ASCENSION NO. 365

SIGNIFICANT LEVEL DATA  
2980060365  
S M R

GEODETIC COORDINATES  
32.48034 LAT DEG  
106.42307 LON DEG

TABLE 7

PRESSURE MILLIBARS	GEOMETRIC ALTITUDE MSL FEET	TEMPERATURE AIR DEWPONT DEGREES CENTIGRADE	REL.HUM. PERCENT
679.1	3997.3	28.2	1.7
865.8	4437.6	24.4	-1.4
950.0	4964.1	22.4	-3.1
760.2	8103.5	14.7	-8.0
700.0	10377.6	11.1	-15.4
645.6	12577.9	7.2	-16.9
566.6	16048.3	-1.7	-19.1
500.0	19272.2	-9.7	-19.0
452.4	21784.9	-15.5	-31.0
400.0	24808.3	-21.2	-39.7
310.6	30773.8	-35.9	-50.7
300.0	31567.9	-36.1	20.0
279.8	33160.9	-36.3	
260.0	34825.3	-39.8	

STATION ALTITUDE 3997.30 FEET ASL  
25 UCT. 79 1300 HRS MST  
ASCENSION NO. 365

UPPER AIR DATA  
2980060305  
S M P

TABLE 8

GEOGRAPHIC COORDINATES  
32°48'03" LAT DEG  
106°42'30" LONG DEG

GEOPHYSIC ALTITUDE ASL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES	REL. HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KIOTS	WIND DATA DIRECTION DEGREES (TN)	INDEX OF REFRACTION
3997.3	879.1	28.2	1.7	10.0	1013.2	677.3	170.0
4000.0	879.0	28.2	1.6	10.0	1013.2	677.3	170.0
4000.0	863.9	24.2	-1.6	18.0	1009.9	672.5	161.6
5000.0	848.9	22.3	-3.1	18.0	998.8	670.4	200.1
5500.0	834.0	21.1	-3.9	18.3	985.3	669.0	226.2
6000.0	819.3	19.9	-4.6	18.7	972.1	667.5	254.0
6500.0	804.8	18.6	-5.4	19.0	959.0	660.1	206.7
7000.0	790.6	17.4	-6.2	19.3	946.2	664.7	209.4
7500.0	770.7	16.2	-7.0	19.6	933.5	663.2	270.4
8000.0	763.0	15.0	-7.8	19.9	921.1	661.8	264.9
8500.0	749.3	14.1	-9.2	19.0	907.5	660.7	259.4
9000.0	735.9	13.3	-10.8	17.6	893.8	659.8	242.2
9500.0	722.6	12.5	-12.4	16.3	880.3	656.8	227.2
10000.0	709.7	11.7	-14.0	15.0	866.9	657.9	229.3
10500.0	696.9	10.9	-15.4	14.1	853.8	656.9	232.1
11000.0	684.2	10.0	-15.0	14.6	840.9	655.9	236.4
11500.0	671.7	9.1	-16.1	15.0	828.2	654.8	244.8
12000.0	659.5	8.2	-16.5	15.5	815.7	653.8	246.8
12500.0	647.5	7.3	-16.8	15.9	803.4	652.8	250.0
13000.0	635.4	6.1	-17.0	17.1	791.9	651.3	200.2
13500.0	623.6	4.8	-17.2	18.4	780.7	649.9	301.5
14000.0	612.0	3.6	-17.4	19.7	759.7	648.3	330.0
14500.0	600.6	2.3	-17.3	21.0	758.9	646.8	336.7
15000.0	589.4	1.0	-16.1	22.3	748.3	645.3	331.7
15500.0	576.4	-0.3	-15.6	23.6	737.8	643.8	328.9
16000.0	567.6	-1.6	-19.0	24.9	727.5	642.3	329.0
16500.0	556.9	-2.8	-18.9	27.7	716.8	640.8	325.3
17000.0	546.1	-4.1	-18.8	30.6	706.3	639.4	316.7
17500.0	535.6	-5.3	-18.8	33.6	695.9	637.9	304.8
18000.0	525.3	-6.5	-18.9	36.5	685.7	636.4	292.1
18500.0	515.2	-7.8	-19.1	39.4	675.7	634.9	261.4
19000.0	505.3	-9.0	-19.4	42.4	665.8	633.4	273.6
19500.0	495.5	-10.2	-20.6	42.1	655.9	632.0	271.2
20000.0	485.7	-11.4	-22.7	38.5	645.9	630.6	272.0
20500.0	476.1	-12.5	-24.9	34.7	636.1	629.1	273.9
21000.0	466.8	-13.7	-27.1	30.9	626.4	627.7	275.0
21500.0	457.6	-14.8	-29.5	27.2	616.8	626.3	274.0
22000.0	448.5	-15.9	-31.6	24.4	607.1	625.0	272.3
22500.0	439.4	-16.8	-33.0	23.1	597.1	623.8	271.2
23000.0	430.6	-17.8	-34.4	21.0	587.2	622.6	270.4

STATION ALTITUDE 3997.30 FEET MSL  
25 OCT. 79 1300 HRS MST  
ASCENSION No. 365

UPPER AIR DATA  
2980060365  
S M R

GEODETIC COORDINATES  
32°48'34" LAT DEG  
106°42'30" LON DEG

TABLE 8 (CONT)

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES	DEWPOINT CENTIGRADE	REL.HUM. PERCENT	GMI/CURRIC METER	SOUND KNOTS	WIND DATA DIRECTION DEGREES TN	SPEED KNOTS	INDEX OF REFRACTION
23500.0	421.9	-18.7	-35.8	20.5	577.5	621.5	270.3	24.7	1.000130
24000.0	413.4	-19.7	-37.2	19.1	566.0	620.3	270.3	24.0	1.000128
24500.0	405.1	-20.6	-38.7	17.6	558.7	619.1	273.4	22.4	1.000126
25000.0	396.8	-21.7	-40.0	17.1	549.5	617.8	278.9	20.3	1.000124
25500.0	388.4	-22.9	-40.9	17.3	540.7	616.3	284.4	19.9	1.000121
26000.0	380.3	-24.1	-41.8	17.6	531.9	614.9	269.2	20.4	1.000119
26500.0	372.3	-25.4	-42.7	17.9	523.4	613.3	269.3	22.1	1.000117
27000.0	364.5	-26.6	-43.6	18.1	515.0	611.8	268.1	24.1	1.000115
27500.0	356.9	-27.8	-44.5	18.4	506.7	610.2	265.5	25.9	1.000114
28000.0	349.4	-29.1	-45.5	18.6	498.6	608.7	262.5	27.6	1.000112
28500.0	342.0	-30.3	-46.4	18.9	490.6	607.1	279.0	29.2	1.000110
29000.0	334.9	-31.5	-47.3	19.1	482.8	605.6	275.3	30.7	1.000108
29500.0	327.8	-32.8	-48.3	19.4	475.1	604.0	272.2	33.2	1.000106
30000.0	321.0	-34.0	-49.2	19.6	467.5	602.5	269.3	35.9	1.000105
30500.0	314.2	-35.2	-50.1	19.9	460.1	600.9	268.1	34.3	1.000103
31000.0	307.5	-36.0	-53.5	14.3**	451.7	590.0	267.1	32.1	1.000101
31500.0	300.9	-36.1	-69.6	1.7**	442.2	599.8	267.7	24.9	1.000099
32000.0	294.4	-36.2			432.7	599.7	269.5	16.9	1.000096
32500.0	288.0	-36.2			423.5	599.7	269.2	11.9	1.000094
33000.0	281.8	-36.3			414.4	599.6	267.5	7.3	1.000092
33500.0	275.6	-37.0			406.7	598.7			1.000091
34000.0	269.6	-38.1			399.6	597.3			1.000089
34500.0	263.8	-39.1			392.6	596.0			1.000087

\*\* AT LEAST ONE ASSUMED RELATIVE HUMIDITY VALUE WAS USED IN THE INTERPOLATION.

STATION ALTITUDE 3997.30 FEET MSL  
25 OCT. 79 1300 HRS MST  
ASSEMBLY NO. 365

MANDATORY LEVELS  
2980060365  
S M R

GEODETIC COORDINATES  
32°48'03.4" LAT DEG  
106°42'30.7" LON DEG

TABLE 9

PRESSURE MILLIGARS	GEOPOTENTIAL FEET	TEMPERATURE		REL.HUM. PERCENT	WIND DATA	
		AIR DEGREES	DEPOINT CENTIGRADE		DIRECTION DEGREES (TN)	SPEED KNOTS
850.0	4961.	22.4	-3.1	18.	198.4	3.8
800.0	6674.	18.2	-5.7	19.	268.6	8.6
750.0	8470.	14.1	-9.1	19.	256.9	9.6
700.0	10367.	11.1	-15.4	14.	231.4	10.0
650.0	12381.	7.5	-16.6	16.	248.8	7.0
600.0	14522.	2.2	-17.8	21.	338.0	4.1
550.0	16802.	-3.6	-18.6	30.	318.7	10.8
500.0	19245.	-9.7	-19.6	44.	270.4	14.8
450.0	21093.	-15.7	-31.3	25.	272.6	20.7
400.0	24767.	-21.2	-39.7	17.	276.5	21.1
350.0	27950.	-29.0	-45.4	19.	282.6	27.6
300.0	31505.	-36.1			267.8	24.1

\*\* AT LEAST ONE ASSUMED RELATIVE HUMIDITY VALUE WAS USED IN THE INTERPOLATION.